

REMARKS

Claims 22-28 and 30-38 are pending in this application. By this Amendment, claim 22 is amended, claims 37 and 38 are added, and claim 29 is cancelled.

Claim 22 is amended to recite “wherein the measured data indicates the remaining shelf life of the perishable object to which the photochromic TTI is attached and calibrated in a quantitative or semi-quantitative manner.” Support for these amendments can be found, for example, at page 2, line 28 – page 3, line 3 and page 4, lines 24-28 of the originally filed specification.

Support for new claim 38 can be found, for example at Figure 2, which shows a stand-alone control unit having a display. Support for new claim 37 can be found, for example, at page 9, lines 28-30 of the originally filed specification.

No new matter is added.

The courtesies extended to Applicants’ representatives by Examiner Verbitsky at the interview held January 15, 2009 are appreciated. The reasons presented at the interview as warranting favorable action are incorporated into the remarks below and constitute Applicants’ record of the interview.

I. Claim Objection

The Examiner has objected to claim 29 as being of improper dependent form. By this Amendment, claim 29 is cancelled, rendering the objection moot.

II. Claim Rejection Under 35 U.S.C. § 112

The Examiner has rejected claim 29 under 35 U.S.C. § 112, second paragraph, as being indefinite. By this Amendment, claim 29 is cancelled, rendering its rejection moot, and claim 37 is added.

As agreed upon during the personal interview, new claim 37 recites “A barcode reader comprising the device of Claim 22,” which is definite and fully supported by the specification. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

III. Claim Rejections Under 35 U.S.C. § 103

A. Tamura in view of Arens

The Examiner has rejected claims 22-27 and 29-36 under 35 U.S.C. § 103(a) as being unpatentable over Tamura (U.S. Patent No. 6,382,125) in view of Arens (U.S. Patent No. 5,667,303). By this Amendment, claim 29 is cancelled, rendering its rejection moot. As to the remaining claims, Applicants respectfully traverse the rejection.

By this Amendment, claim 22 is amended to recite “wherein the measured data indicates the remaining shelf life of the perishable object to which the photochromic TTI is attached and calibrated in a quantitative or semi-quantitative manner.” On page 4 of the Office Action, the Examiner acknowledges that Tamura is not explicit about determining the shelf life/remaining life of the object/product. Accordingly, Tamura does not teach the device of claim 22. Arens does not cure this deficiency.

The Examiner states, “Arens teaches that a machine readable data/barcode could be used to determine the remaining shelf life of a food product.” However, the TTI of Arens is a totally different system than the claimed device, as it does not use a “photochromic TTI.”

The TTI of Arens comprises a porous matrix and a viscoelastic material. At elevated temperatures the viscoelastic material migrates into the porous matrix and thus changes the light transmissivity of the porous material.

Arens describes two types of bar codes: (1) a latent bar code, and (2) an obscurable bar code. The latent bar code is not visually observable in its unactivated state. The migration of the viscoelastic material into the porous matrix sufficiently increases the light transmissivity of the porous matrix such that the latent bar code becomes visually observable. See Arens at col. 4, lines 55-62, and Figs. 13A and 13B.

The obscurable bar code is readable by a bar code reader when the porous matrix is opaque, and wherein migration of the viscoelastic material into the porous matrix sufficiently increases the light transmissivity of the porous matrix such that the bar code becomes sufficiently obscured so as not to be readable by a bar code reader. See Arens at claim 13, col. 4, line 63 – col. 5, line 7, and Figs. 14A-14C.

Arens addresses the remaining shelf life in combination with the bar code at col. 24, lines 6-13 which states, "An obscurable bar code indicia would be obscured to indicate cumulative thermal exposure exceeding a predetermined allowable maximum. With the bar code obscured, it would not be readable by a laser bar code reader, thereby preventing sale of an object whose useful shelf life is exceeded. A latent bar code indicia could be used in combination with an obscurable bar code indicia to re-price an item as the remaining shelf life is reduced."

Moreover, Arens teaches Hunter L measurements that are taken when the indicator undergoes cumulative thermal exposure. Arens states, "Also, the obscurable bar code indicia is scanned with a laser scanner of the type known as the Quick-Check 5 with a 633 wand, available

from Photographic Sciences Corp., of Webster, N.Y. It has been observed that as the Hunter L value of the activated matrix 20 passes below approximately 58-60, the contrast between the obscurable bar code indicia 51 and its background is sufficiently reduced that the bar code reader can no longer read the obscurable bar code 51." See col. 24, lines 33-41.

Accordingly, Arens teaches a yes/no statement. The bar code is readable or it is not readable. When the bar code is not readable, it is clear that the remaining shelf life is reduced. However, Arens does not indicate the remaining shelf life of the perishable object "in a quantitative or semi-quantitative manner," as claimed.

Fig. 5B of the present specification shows the time response of a photochromic TTI. The L value is plotted against the remaining shelf life, and the L value increases. This means that the color changes from a dark color to a light color. Between the different nodes (a, b, c, etc.), the food has been transported and there is a risk that during the transport the chill chain is interrupted. Thus, at each node a quantitative or semi-quantitative statement on the remaining shelf life is received. This statement is only possible because a photochromic dye is used, which allows this exact color tuning. Fig. 6 shows that the TTI color varies in a predictable fashion from dark blue to white.

By comparing the spectral properties (intensity as a function of wavelength) of the incident light and collected light signals, by knowing the initial status of the TTI at time zero, and by knowing the time-temperature dependent color decay profile of the TTI, one can extract the exact remaining shelf life of the TTI at any given temperature. Thus, one can extract the exact remaining shelf life of the perishable object.

Arens does not teach or suggest that the yes/no statement can be shifted into a quantitative or semi-quantitative readout by changing the TTI system, and there is no teaching or suggestion by Tamura that due to a photochromic dye, a quantitative or semi-quantitative assessment of freshness all along the supply chain can be obtained.

The combination of Tamura and Arens results in the statement that it is possible to see that the remaining shelf life is reduced by providing a yes/no answer, but does not teach the extent to which the remaining shelf life is reduced. Thus, Arens does not provide an indication of the remaining shelf life of the perishable object in a quantitative or semi-quantitative manner, as claimed. Accordingly, the combination of Tamura and Arens does not teach or suggest the device of claim 22.

Therefore, claim 22 would not have been rendered obvious by Tamura and Arens. Claims 23-27 and 30-36 depend directly or indirectly from claim 22 and, thus, also would not have been rendered obvious by Tamura and Arens. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Tamura, Arens and Zalameda

The Examiner has rejected claim 28 under 35 U.S.C. § 103(a) as being unpatentable over Tamura and Arens, as applied to claims 22-27 and 29-36 above, and further in view of Zalameda et al. (U.S. Patent Application Publication No. 2003/01939870, "Zalameda").

As discussed above, the device of claim 22 would not have been rendered obvious by Tamura and Arens, because the references do not teach or suggest "wherein the measured data indicates the remaining shelf life of the perishable object to which the photochromic TTI is

attached and calibrated in a quantitative or semi-quantitative manner,” as recited in claim 22.

Zalameda does not cure this deficiency.

Consequently, 22 would not have been rendered obvious by Tamura, Arens and Zalameda. Claim 28 depends from claim 22 and, thus, also would not have been rendered obvious by the references. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Helmer in view of Tamura and Arens

The Examiner has rejected claims 21-27 and 29-36 as being unpatentable over Helmer et al. (U.S. Patent Application Publication No. 2005/0139686, “Helmer”) in view of Tamura and Arens. By this Amendment, claim 29 is cancelled, rendering its rejection moot, and claim 21 had already been cancelled. As for remaining claims, Applicants respectfully traverse the rejection.

As discussed above, Tamura and Arens do not teach or suggest the device of claim 22, because Tamura and Arens do not teach or suggest the feature of “wherein the measured data indicates the remaining shelf life of the perishable object to which the photochromic TTI is attached and calibrated in a quantitative or semi-quantitative manner.” Accordingly, the device of claim 22 would not have been rendered obvious by Tamura and Arens.

The Examiner acknowledges that Helmer does not teach the particular machine reader comprising a light source and receiving the light emitted from the label, and determination of the shelf-life of the food object, as claimed by applicants. See Office Action at page 6. Accordingly, Helmer does not cure the deficiencies of Tamura and Arens.

Therefore, claim 22 would not have been rendered obvious by Helmer in view of Tamura and Arens. Claims 23-27 and 30-36 depend from claim 22 and, thus, also would not have been

rendered obvious by Helmer in view of Tamura and Arens. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

IV. New Claims

By this Amendment, new claims 37 and 38 are presented. New claims 37 and 38 depend from claim 22 and, thus, are distinguished over the applied references for at the reasons discussed above with respect to claim 22. Accordingly, prompt examination and allowance of new claims 37 and 38 are respectfully requested.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 22-28 and 30-38 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

Dietrich HAARER et al.

By: Warren M. Cheek
Warren M. Cheek
Registration No. 33,367
Attorney for Applicants

WMC/ABF/vah
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
January 21, 2009